

Demonstrable Evidence of Beneficial Physical Outcomes from University Physical Education Activity Courses

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ABSTRACT

INTRODUCTION: Engagement in physical activity (PA) is often dramatically reduced during the transition from high school into college. There appears to be more stability in PA patterns during the transition from college into post-graduate life. Consequently, researchers have highlighted the years in higher education as pivotal for shaping lasting PA habits. Sadly, there is a widespread lack of evidence regarding the outcomes from physical education activity courses (PEAC) offered on campuses of higher education. Thus, their overall value lacks validation. The purpose of this work was to offer evidence of outcomes from engagement in a single, semester-long university PEAC class. **METHODS:** Students were recruited from a variety of classes. There were no directions provided to the instructors of the courses. For grouping, classes were categorized as aerobic- (aerobics, jogging, and walking) or sport-activity (badminton, pickle ball, self-defense, strength training, and ultimate frisbee). Students in the aerobic-activity arm were randomized to aerobic testing where they underwent a submaximal treadmill protocol and grip strength (GS) testing or body composition testing (air displacement plethysmography) and GS. Those in the sport-activity arm underwent vertical jump and GS testing. Students reported to the human performance lab in the first two and final two weeks of the semester. Paired t-tests were conducted to identify differences in pre-post outcomes. Values were carried forward, not dropped, when a subject failed to return at post-test. **RESULTS:** A total of 46 students (age = 21.7 ± 4.1) were randomized into the aerobic (n=25; m/f = 11/14) or body composition arms (n=21; m/f = 7/14). Additionally, 45 students (age = 20.8 ± 3.2 ; m/f = 23/22) from sport-activity classes were enrolled. Participation in aerobic-activity classes resulted in improvements in estimated maximal aerobic ability ($p = 0.030$; 42.9 ± 9.9 vs. 44.6 ± 10.1). Participation also resulted in increases in GS for those allocated to both the aerobic ($p = 0.010$; 56.4 ± 21.5 vs. 60.3 ± 22.3) and body composition ($p = 0.022$; 54.1 ± 22.1 vs. 58.1 ± 24.6) arms. Participation did not result in changes in body composition ($p = 0.817$; 24.7 ± 8.5 vs. 24.6 ± 7.4) despite a near-significant increase in weight ($p = 0.057$; 152.7 ± 38.5 vs. 154.5 ± 37.7). Participation in sport-activity classes resulted in an improvement in vertical jump ($p = 0.007$; 18.2 ± 6.1 vs. 18.9 ± 6.0) and GS ($p = 0.002$; 65.3 ± 25.6 vs. 70.0 ± 27.8). **DISCUSSION:** An important first step in rebutting challenges about the credibility and worthiness of PEAC offerings is evidencing beneficial outcomes. These results represent simple, but important, markers of change. Additional demonstrable evidence is needed to ascertain elements such as what outcomes are

achievable, what classes are most effective classes, and what components from class support lasting change.

